can then act on the member **28**, or directly opens the valve **13**. Whatever the mode of operation (manual using the member **28** or automatic via the sensor **29**), the valve **13** allows fluid through, which means that the compressed air from the compressor stage **11** is sent to the cooler **14**, possibly after filtering at **12**. The cooler **14** therefore feeds compressed air to both the splitter **22** (through the nonreturn valve **23** and the filter **24**) and the reservoir **10** containing the backup lubricating and cooling liquid (via the connection **10**A). The latter liquid is therefore also sent under pressure to the splitter **22**, through the pressure and flow limiter **25**, the nonreturn valve **26** and the filter **27**. By virtue of the limiter **25**, which may be of any known type, the pressure of the backup lubricating and cooling liquid at the splitter **22** is at most equal to 2 bar ($2.10^{-5}$ pascal) and preferably equal to 1 bar ($10^{-5}$ pascal).

[**0039**] The splitter **22** therefore feeds the feed devices **20** and **21** and the nozzles **17** and **18** with backup liquid (at this low pressure) and with compressed gas. These nozzles **17** and **18** are therefore able to spray a mist of said backup liquid onto the internal components (or some of them) of the gearbox **1**, to lubricate and cool them so as to allow the gearbox (and therefore the helicopter) to survive in spite of the failure of the main device **2**.

[**0040**] It will be noted that, because the pressure with which the backup lubricating and cooling liquid is sent to the nozzles **17** and **18** is low, the consumption of these nozzles is also low, which means that, for a predetermined survival time, the amount of backup liquid needed, and therefore also the volume of the reservoir **10**, can be small. Thus the applicant company has been able to discover that, on one of its helicopters, the amount of backup lubricating and cooling liquid could, for the same survival time, be reduced from **35** liters to **10** liters by implementing the present invention.

[**0041**] In the alternative form of embodiment depicted in **FIG. 2**, there can be found all the elements **1** to **29** described hereinabove, arranged in the same way except as regards the connection **10**A between the cooler **14** and the reservoir **10**, which connection has been omitted.

[**0042**] By contrast, the system of **FIG. 2** has, in addition by comparison with that of **FIG. 1**, a capsule **13** of pressurized gas and another valve **31**, normally closed and in parallel with the valve **13**. This valve **31** may also be of the electrically operated valve type. It can be opened by the member **28** and/or the pressure sensor **29**, in the same way as was described hereinabove in respect of the valve **13**, the valves **13** and **31** being operated jointly and simultaneously.

[**0043**] In the light of the foregoing explanations, it will therefore be readily understood that, in the event of the main device **2** becoming defective, the valves **13** and **31** are opened together so that the splitter **22**, and therefore the spray nozzles **17** and **18**, are fed with compressed air, as above, through the valve **13**, the cooler **14**, the nonreturn valve **23** and the filter **24**, and with backup lubricating and cooling liquid by the action of the compressed gas capsule **30**, through the pressure and flow limiter **25**, the nonreturn valve **26** and the filter **27**. As before, the pressure of the backup liquid at the nozzles **17** and **18** is at most equal to 2 bar ($2.10^{-5}$ pascal) and preferably equal to 1 bar ($10^{-5}$ pascal).

[**0044**] In the other alternative form of embodiment depicted in **FIG. 3**, there can again be found all the elements **1** to **24** and **26** to **29** described hereinabove with reference to **FIG. 1** and arranged in the same way, the connection **10**A between the cooler **14** and the reservoir **10** however being omitted. In addition, the pressure and flow limiter **25** is also omitted. The connection **10**A and the limiter **25** are replaced by a device **32** comprising, on the one hand, a pump **33** which can be operated in parallel with the valve **13** by the member **28** and/or the sensor **29** and, on the other hand, a bypass comprising a nonreturn valve **34**, which is mounted in parallel with the pump **33**, between the outlet thereof and the reservoir **10**. The opening of the nonreturn valve **34** is set to be just higher than the pressure desired for the nozzles **17** and **18**. The pump **33** is, for example, of the positive-displacement type and performs regulation. It may be of variable output and adjustable pressure type.

[**0045**] Thus, when the main device **2** becomes defective, the member **28** and/or the pressure sensor **29** simultaneously open the valve **13** (as was the case for the systems in **FIGS. 1 and 2**) and actuate the pump **33** which sends the backup liquid contained in the reservoir **10** to the splitter **20** and to the nozzles **17** and **18**. If the pressure of this backup liquid exceeds the desired low value (at most equal to 2 bar), then the nonreturn valve **34** opens and the liquid is returned to the reservoir **10**. The nonreturn valve **34** therefore acts as a pressure limiter.

**1-10**. (Canceled).

**11**. A system for lubricating and cooling a mechanical assembly such as a helicopter transmission gearbox, said system comprising:

a main lubricating and cooling device circulating a stream of lubricating and cooling liquid through said mechanical assembly at a relatively high pressure; and

an auxiliary backup device set in operation automatically or manually when said main device becomes defective, said backup device comprising:

at least one reservoir of lubricating and cooling liquid;

at least one source of pressurized gas;

at least one spray nozzle which is fed, on the one hand, with the lubricating and cooling liquid from said reservoir provided under pressure and, on the other hand, with the pressurized gas from said source, and which is able to spray a mist of the lubricating and cooling liquid onto said mechanical assembly so as temporarily to supplement the defective main device, wherein:

said reservoir of the auxiliary backup device is independent of said main device; and

a pressure and flow limiter is arranged between said reservoir and said spray nozzle;

said spray nozzle is fed with the lubricating and cooling liquid from said reservoir at a pressure at most equal to 2 bar ($2 \cdot 10^5$ pascal).

**12**. The system as claimed in claim 11, wherein said spray nozzle is fed with the lubricating and cooling liquid at a pressure roughly equal to 1 bar ($10^5$ pascal).

**13**. The system as claimed in claim 11, wherein said independent reservoir of the lubricating and cooling liquid is arranged some distance away from said mechanical assem-